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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/717,736

11/20/2003

Scott E. Black

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10/31/2006

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EXAMINER

LAU, TUNG S

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/717,736

Applicant(s)

BLACK ET AL.

Examiner

Tung S. Lau

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 18-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 18-23 stand withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention as noted on 05/18/2006.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

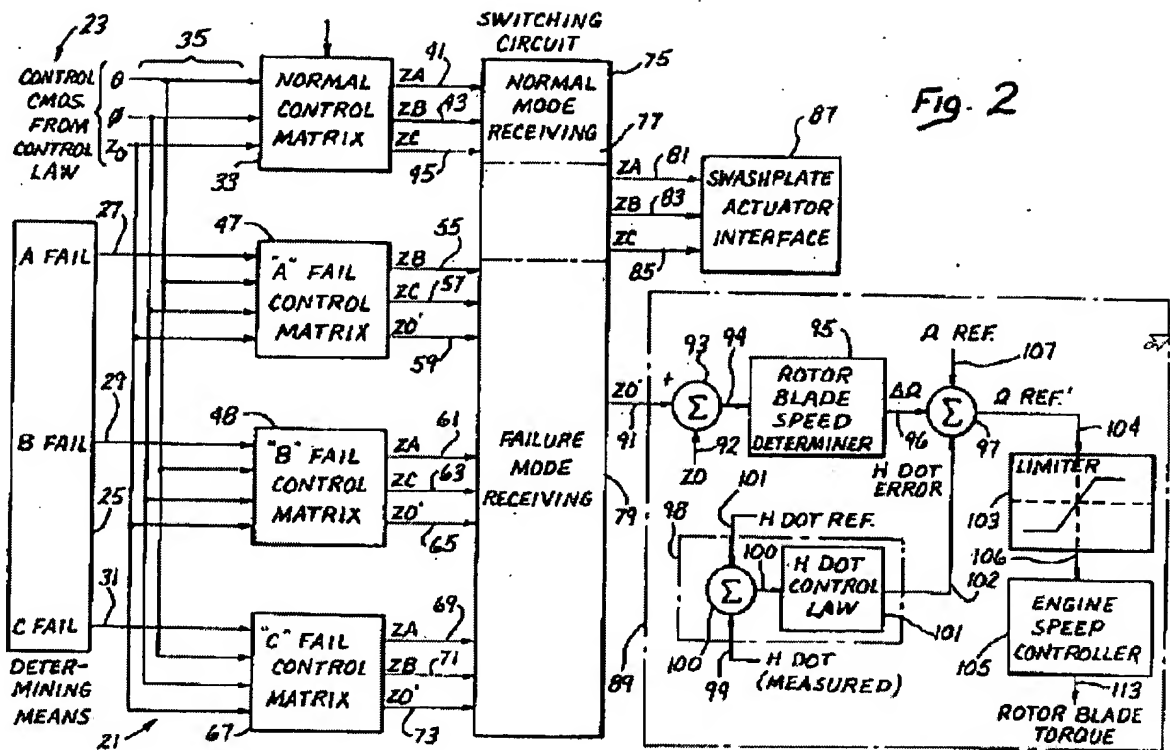
Claims 1-13 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Osder (U.S. Patent 5,678,786).

Regarding claim 1:

Osder discloses a method of operating a product, comprising: monitoring a first diagnostic information of a component of the product (Col. 3, Lines 30-61, fig. 2, unit 27, 47); monitoring a second diagnostic information of a system of the product (Col. 3, Lines 30-61, fig. 2, unit 29, 48), the system including the component (Col. 3, Lines 30-61); combining the first diagnostic information of the component and the second diagnostic information of the system (Col. 3, Lines 30-61); and based at least partially on the combined first and second diagnostic

information, reconfiguring at least one of the component and the system (Col. 3-4, Lines 50-20).

Regarding claim 2, Osder further discloses monitoring a first diagnostic information of a component includes monitoring a health indication of the component (Col. 4, Lines 8-19); Regarding claim 3, Osder further discloses monitoring a first diagnostic information of a component includes monitoring a capability indication of the component (Col. 12, Lines 46-56, fig. 2, unit 35); Regarding claim 4, Osder further discloses monitoring a first diagnostic information of a component includes monitoring a reliability indication of the component (Col. 13, Lines 24-39); Regarding claim 5, Osder further discloses monitoring a information of a component includes monitoring a first diagnostic information of an actuator (Col. 4, Lines 39-50).



Regarding claim 6, Osder further discloses monitoring a second diagnostic information of a system includes monitoring a health indication of the system (Col. 3, Lines 39-50, fig. 2, unit 48); Regarding claim 7, Osder further discloses monitoring a second diagnostic information of a component includes monitoring a capability indication of the component (Col. 12, Lines 46-56, fig. 2, unit 48); Regarding claim 8, Osder further discloses monitoring a second diagnostic information of a component includes monitoring a reliability indication of the component (Col. 13, Lines 24-39, fig. 2, unit 48); Regarding claim 9, Osder further discloses monitoring a second diagnostic information of a system includes monitoring a second diagnostic information of a flight control system (Col. 3, Lines 40-61, fig. 2, unit 48); Regarding claim 10, Osder further discloses

reconfiguring at least one of the component and the system includes reconfiguring a flight control system to take into account a degradation of an actuator (Col. 3-4, Lines 39-7); Regarding claim 11, Osder further discloses feeding back the reconfiguring of the at least one of the component and the system into the fusion of the first and second diagnostic information (Col. 3-4, Lines 39-19, fig. 2, unit 79, 95); Regarding claim 12, Osder further discloses inputting the combined first and second diagnostic information into a maintenance support block (fig. 2, unit 79, 95, 98); Regarding claim 13, Osder further discloses inputting the combined first and second diagnostic information into a maintenance support block includes inputting the combined first and second diagnostic information into the maintenance support block to at least one of enable post-flight analysis and interpretation, and assist in assessing the prognosis of the component and system (Col. 3-4, Lines 39-33, fig. 2, unit 75, 89); Regarding claim 16, Osder further discloses reconfiguring at least one of the component and the system includes reconfiguring at least one of the component and the system using an integrated vehicle health management system (fig. 2, unit 79, 89, Col. 3-4, Lines 39-34); Regarding claim 17, Osder further discloses integrating an integrated vehicle health management system will reconfigurable control, and performing tests of at least one of the component and the system during actual operation of the product (Col. 3-4, Lines 39-20, fig. 1, fig. 2, unit 75, 89).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

a. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osder (U.S. Patent 5,678,786) in view of Board et al. (U.S. Patent 6,351,713).

Regarding claim 14, Osder discloses a method including the subject matter discussed above except to reduce false alarm in a build in test system, Board discloses to reduce false alarm in a build in test system (Col. 3, Lines 1-11); in order to maximize fault detection probability (Col. 3, Lines 1-4), and increase reliability of the helicopter (Col. 2, Lines 47-53, Col. 3, Lines 1-11).

Regarding claim 15, Osder discloses a trending one or more degradation to provide a prognostic capability (Col. 3, Lines 39-50, fig. 2, unit 89, 75).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Osder to reduce false alarm in a build in test system taught by Board in order to maximize fault detection probability and increase reliability of the helicopter.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

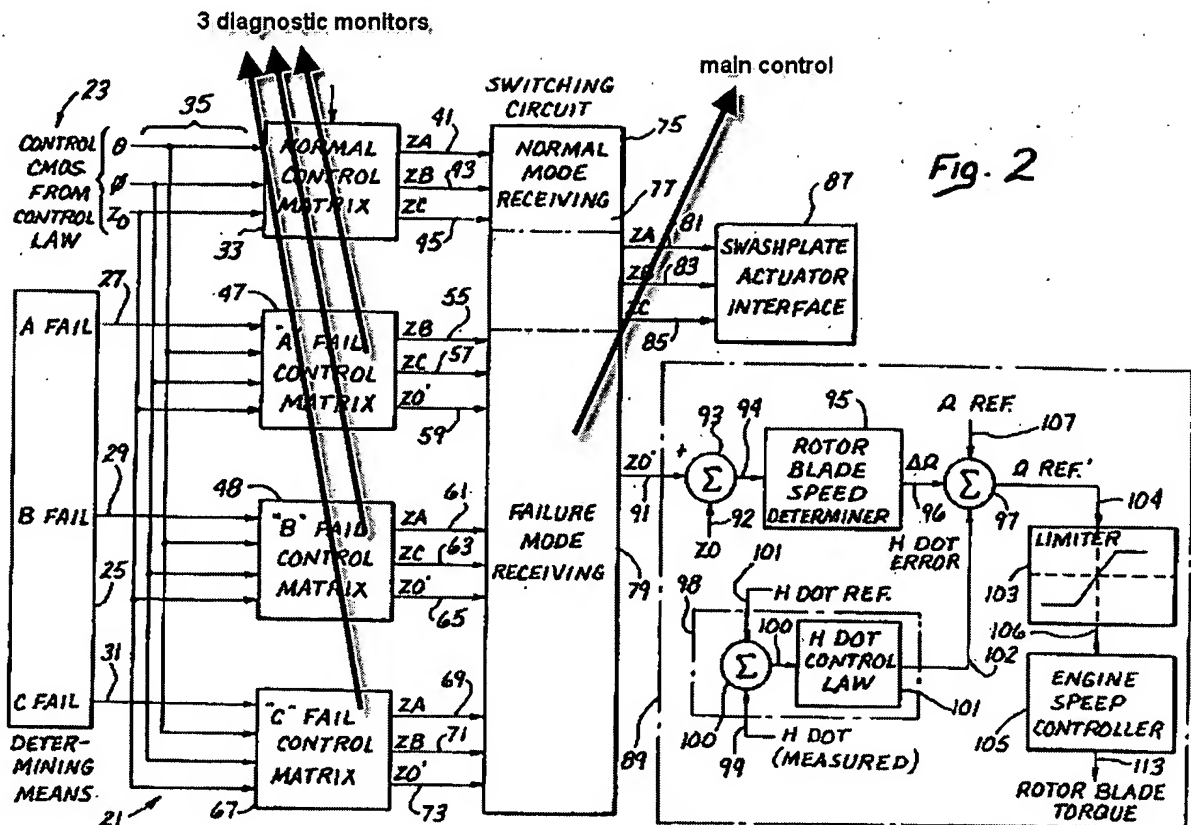
Osder and Board are analogous art because they are from the same field of endeavor, detecting faulty system in a helicopter.

#### ***Response to Arguments***

4. Applicant's arguments filed 09/18/2006 have been fully considered but they are not persuasive.

A. Applicant argues in the arguments that the prior art does not show the "monitoring a second diagnostic information of a system of the product, the system including the component." (page 7 lines 3-5 of the applicant's remarks)





As Osder discloses three axis of the rotor are being monitor constantly to correct and to compensate any system failure (abstract), Osder clearly discloses "monitoring a second diagnostic information of a system of the product, the system including the component." In fig. 2, unit 48.

B. Applicant continues to argue in the arguments that the prior art does not show the ' a system associated with and including any of the first, second, and third actuator components', "the monitoring of any system that encompasses any of the first, second and third actuator components. "the monitoring of

diagnostic information of "a system of the product, the system including the component," (page 7 lines 7-12 of the applicant's remarks)

Osder clearly discloses 'a system associated with and including any of the first, second, and third actuator components" in fig. 2, unit 79, 77, where the main controller associated the three axis of the rotating axis of the helicopter.

As regards to "the monitoring of any system that encompasses any of the first, second and third actuator components. Osder clearly discloses the monitoring (fig. 2, unit 79, 77) of any system that encompasses any of the first (fig. 2, unit 47), second (fig. 2, unit 48) and third actuator components (fig. 2, unit 67).

As regards to "the monitoring of diagnostic information of "a system of the product, the system including the component," . Osder clearly discloses "the monitoring of diagnostic information (fig. 2, unit 79, 77) of "a system of the product, the system including the component (fig. 2, unit 47, 48, 67),"

C. Applicant continues to argue in the arguments that the prior art does not show "combining the first diagnostic information of the component and the second diagnostic information of the system." (page 7 lines 14-15 of the applicant's remarks)

Osder clearly discloses "combining the first diagnostic information(fig. 2, unit 79, 77) of the component and the second diagnostic information of the system (fig. 2, unit 48)."

D. Applicant continues to argue in the arguments that the prior art does not show "the monitoring of any system that encompasses the first, second and third actuator components. Thus, Osder cannot possibly teach obtaining "the second diagnostic information of the system." As a result, Osder also cannot teach the combination of this "second diagnostic information of the system" with the "first diagnostic information of the component," as recited in claim 1." (page 7 lines 16-20 of the applicant's remarks)

Osder clearly discloses "the monitoring of any system that encompasses the first, second and third actuator components in fig. 2, unit 79, 77 where in control the three axis of the rotating blade matrix of unit 47, 48 and 67.

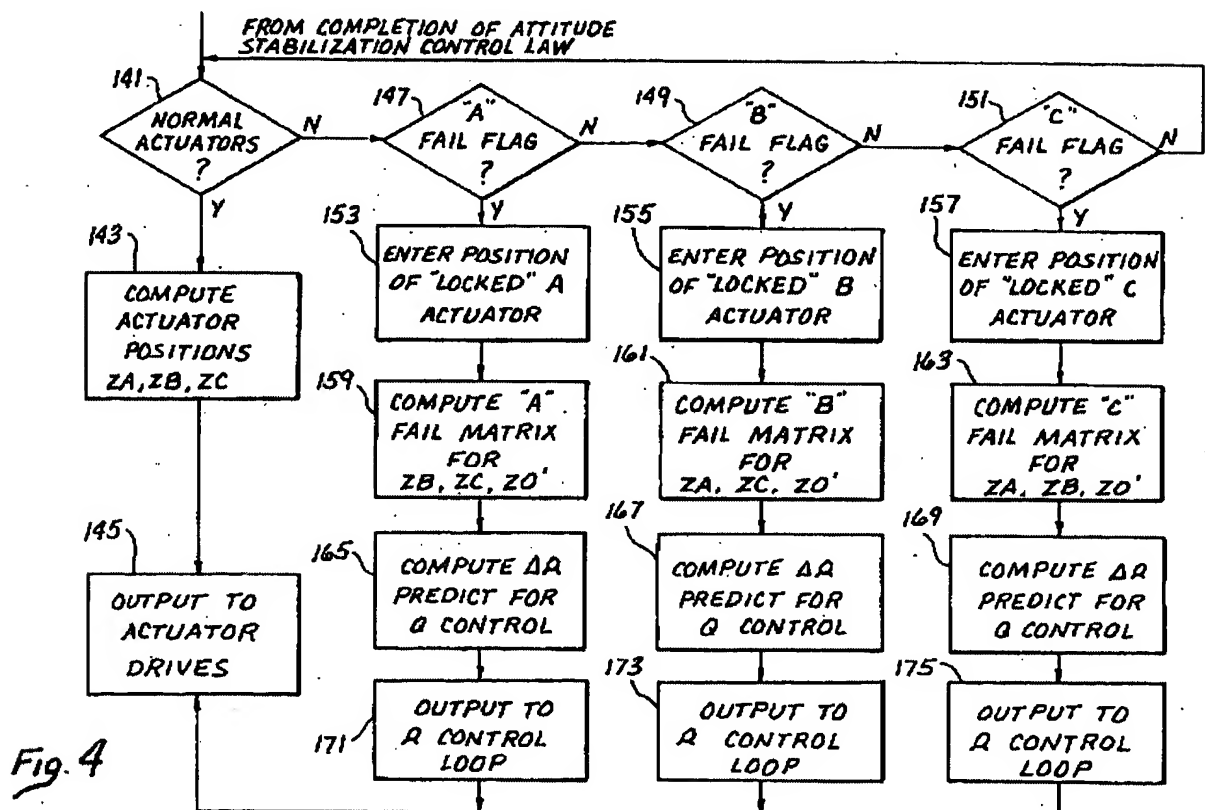
Osder also discloses "the second diagnostic information of the system in fig. 2, unit 48, 79."

Osder also discloses "second diagnostic information of the system in fig. 2, unit 48 " with the "first diagnostic information of the component in fig. 2, unit 47.

E. Applicant continues to argue in the arguments that the prior art does not show "method of operating a product, as recited in claim 1, comprising, "based at least partially on the combined first and second diagnostic information, reconfiguring at least one component of the system." (emphasis added). As

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recited in claim 1, the second diagnostic information is that of a system that includes a component. Osder cannot teach the reconfiguration at least one component "based at least partially on the combined first and second diagnostic information," (page 7-8 lines 21-4 of the applicant's remarks)



Osder clearly discloses "based at least partially on the combined first and second diagnostic information, reconfiguring at least one component of the system." in fig. 2, unit 77, 79 where the operation of the blade is depend on the functional status of the blade itself as shown in fig. 4, unit 147, 149, 151.

Osder also discloses the reconfiguration at least one component (fig. 4, unit 147 when one axis fail, the operation of the other blade changes )"based at least

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partially on the combined first and second diagnostic information (fig. 4, unit 149 and 151 as well when the other one or two axis fail, the main controller operate differently for other axis that are working good in Col. 3-4, Lines 62-6" And that rejection of claims 2-13 and 16-17 for the same reason (page 8 lines 5-9 of the applicant's remarks)

F. Applicant continues to argue in the arguments that the prior art does not show " Osder does not teach a method of operating a product, "wherein monitoring a second diagnostic information of a system includes monitoring a health indication of the system." does not specifically teach a system encompassing any of these components or monitoring such a system. Osder cannot possibly teach "monitoring a second diagnostic information of a system includes monitoring a health indication of the system," (page 8 lines 10-17 of the applicant's remarks)

Osder clearly discloses method of operating a product, "wherein monitoring a second diagnostic information of a system includes monitoring a health indication of the system (fig. 2, unit 47, 48, 67, 79 and 75, where the controller monitor the status of the 3 axis of the blade in a helicopter and reconfigure if is needed when one or more axis fail (Col. 3, Lines 52-61).

Osder also discloses a system encompassing any of these components or monitoring such a system in fig. 2, unit 77 and 79. Osder teach "monitoring a

second diagnostic information of a system includes monitoring a health indication of the system in fig. 2, unit 77 and 79"

G. Applicant continues to argue in the arguments that the prior art does not show "a system encompassing any of these components or monitoring such a system. Osder does not teach monitoring a second diagnostic information of a system that includes, "monitoring a capability indication of the system," "monitoring reliability indication of the system," and "monitoring a second diagnostic information of a flight control system." (page 8 lines 18-25 of the applicant's remarks)

Osder clearly discloses a system encompassing any of these components or monitoring such a system in fig. 2, unit 77 and 79 where the controller monitor such function regarding the function of each rotating blade.

Osder also discloses "monitoring a capability indication of the system, in fig. 2, unit 47, 48 and 67" "monitoring reliability indication of the system, in fig. 2, unit 47, 48 and 67" and "monitoring a second diagnostic information of a flight control system in fig. 2, unit 48.

H. Applicant continues to argue in the arguments that the prior art does not show "inputting the combined first and second diagnostic information into a maintenance support block." but does not teach a system encompassing

any of these components or monitoring such a system to obtain diagnostic information. "wherein inputting the combined first and second diagnostic information into a maintenance support block includes inputting the combined first and second diagnostic information into the maintenance support block to at least one of enable post-flight analysis and interpretation, and assist in assessing the prognosis of the component and system." (page 9 lines 1-13 of the applicant's remarks)

Osder clearly discloses inputting the combined first and second diagnostic information into a maintenance support block in fig. 2, unit 79 and 77. where each axis of rotation is inputting into the main controller.

Osder also discloses a system encompassing any of these components or monitoring such a system to obtain diagnostic information in fig. 2, unit 79 and 77. "wherein inputting the combined first and second diagnostic information into a maintenance support block includes inputting the combined first (fig. 2, unit 47) and second diagnostic (fig. 2, unit 48) information into the maintenance support block (fig. 2, unit 7) to at least one of enable post-flight analysis and interpretation, and assist in assessing the prognosis of the component and system (fig. 4, unit 147-175, where each axis is being compensate and calculate according to the other operation status.)

I. Applicant continues to argue in the arguments that the prior art does not show

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"Osder does not teach a method of operating a product, "wherein reconfiguring at least one of the component and the system includes reconfiguring at least one of the component and the system using an integrated vehicle health management system." (page 9 lines 14-21 of the applicant's remarks)

Osder clearly discloses method of operating a product, "wherein reconfiguring at least one of the component and the system includes reconfiguring at least one of the component and the system using an integrated vehicle health management system in fig. 2, unit 77, where the operating of the blade is being reconfigured according to other blades working condition fig. 4, unit 147-175.

J. Applicant continues to argue in the arguments that the prior art does not show The limitation of claim 17 namely " integrating an integrated vehicle health management system with reconfigurable control, and performing tests of at least one of the component and the system during actual operation of the product." And Osder does not teach that each of its failure control matrix computing means failure-mode receiving means the swashplate actuator interface 87, and the swashplate collective position controller 89 is capable of "performing tests of at least one of the component and the system." (page 9-10 lines 22-7 of the applicant's remarks)



Osder clearly discloses integrating an integrated vehicle health management system with reconfigurable control, and performing tests of at least one of the component and the system during actual operation of the product." In fig. 2, unit 77 and 79, fig. 4, unit 141-175 .

Regarding to claim 17 applicant argue that Osder does not teach that each of its failure control matrix computing means failure-mode receiving means the swashplate actuator interface 87, and the swashplate collective position controller 89 is capable of "performing tests of at least one of the component and the system." the above limitation is not in claim 17. Regarding claim 17, Osder further discloses integrating an integrated vehicle health management system will reconfigurable control, and performing tests of at least one of the component and the system during actual operation of the product (Col. 3-4, Lines 39-20, fig. 1, fig. 2, unit 75, 89).

**K.** Applicant continues to argue in the arguments that Board does not show "monitoring a second diagnostic information of a system of a product, the system including the component," as recited in claim 1. (page 10-11 lines 16-9 of the applicant's remarks). Reminds to the applicant that claim 1 was a 102 reference by Osder, has nothing to do with Board.

Regarding claim 1:

Osder discloses a method of operating a product, comprising: monitoring a first diagnostic information of a component of the product (Col. 3, Lines 30-61, fig. 2, unit 27, 47); monitoring a second diagnostic information of a system of the product (Col. 3, Lines 30-61, fig. 2, unit 29, 48), the system including the component (Col. 3, Lines 30-61); combining the first diagnostic information of the component and the second diagnostic information of the system (Col. 3, Lines 30-61); and based at least partially on the combined first and second diagnostic information, reconfiguring at least one of the component and the system (Col. 3-4, Lines 50-20).

L. Applicant continues to argue in the arguments that claims 14-15 are allowable, just argues that Board does not disclose limitation in claim 1 (page 11, lines 10-15 of the applicant's remarks), the argument is not persuasive since board has nothing to do with claim 1.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

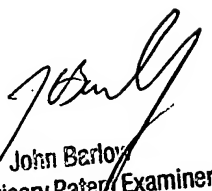
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory

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period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S Lau whose telephone number is 571-272-2274. The examiner can normally be reached on M-F 9-5:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone numbers for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TL



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